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## CHINA REPORT ECONOMIC AFFAIRS

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## FINANCE AND BANKING

### LOTTERY SAVINGS PROGRAMS EXPANDED

Beijing SHICHANG in Chinese 20 Jul 81 p 1

[Article by Li Shan [2621 2619]: "21 Provincial Banks Set Up Lottery Savings"]

[Text] According to the findings of the authorities concerned, the people's banks of 21 provinces, municipalities and autonomous regions have launched lottery savings campaigns. There are several other provinces and municipalities still awaiting deposit slips to be printed before launching the drive. Lottery savings is a kind of banking operation which sets aside some or all of the interest to be awarded as prizes to the winners, who may win a few up to several hundred yuan, based on their rankings.

Although the lottery savings programs of the different localities differ in details, they are, generally speaking, fixed amount, fixed period lottery savings; fixed period deposit/lump-sum withdrawal lottery savings; current deposit lottery savings; and combined fixed and current deposit lottery savings. The prizes are drawn once a month, semi-annually or annually. The banks in those areas where the lottery savings program is in operation are already realizing a tremendous increase in deposits. The day the program began in Guangzhou, more than 100,000 people bought savings certificates and some 500,000 depositors brought a total of 5 million yuan to the banks. The 8 million yuan worth of savings certificates issued last April in Wuhan were bought by the masses in a few days. According to statistics, all the cities and towns of the whole country reached, during the first 4 months of 1981, an average of 40.7 percent of their savings targets for the year. Since the introduction of the lottery savings program, however, Guangzhou has reached 74.56 percent of its target, Fujian 68.07 percent and Xinjiang 63 percent. The people's banks in many areas which are in favor of savings with both interest and prizes and many small prizes for more people have been able to extend the benefits to a large number of participants of the program. When the prizes were drawn in Zhejiang last January, over 27,000 people were winners and 260 of them won grand prizes. The prefectures of Huimin, Linyi and Liaocheng of Shandong even provided 1300 "Golden Deer" bicycles for the winners of the first and second prizes to buy. Assured of the advantages of savings, the masses have expressed their willingness to practice austerity and step up their savings. Some depositors who won prizes spent their prize money to buy more savings certificates.

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## ENERGY

### DEVELOPMENT IN COAL MINE CONSTRUCTION, PRODUCTION OUTLINED

Beijing MEITAN KEXUE JISHU [COAL SCIENCE AND TECHNOLOGY] in Chinese No 6, Jun 81  
pp 2-4

[Paper presented by the China National Mining Committee at the 48th Session of the Organizing Committee of the World Mining Congress: "The Development of China's Coal Industry"]

[Text] China is a country endowed with extremely rich resources of energy. Coal is the chief energy source of our country, and accounts for approximately 70 percent of the overall consumption of various nonrenewable energy sources, while petroleum and natural gas account for approximately 26 percent, and hydropower accounts for almost 4 percent.

Following the founding of New China, the coal industry has developed tremendously. In 1949, the raw coal output in this country (excluding Taiwan) was merely 32.4 million tons; in 1980, it rose to 620.13 million tons, which was more than 19 times that of the 1949 output at the average growth rate of approximately 10 percent per annum, i.e., an annual mean net growth of 19 million tons. Of the total coal output, approximately 55 percent was produced by mines run by the Ministry of Coal Industry, about 10 percent was produced by provincial mines, and approximately 35 percent came from local mines. Most of the provincial and local coal mines were medium and small pits widely distributed over some 1,100 counties across the country. Twenty of the mining districts under the direct jurisdiction of the Ministry of Coal output over 5 million tons per annum, and there are 10 large mining districts which have the capacity to produce over 10 million tons of coal each year: Datong, Kailuan, Fengfeng, Yangquan, Fuxin, Jixi, Hegang, Xuhou, Huibei, and Pingding Mountain. In 1980, their total coal output amounted to 143 million tons, which accounted for approximately 42 percent of the total output of Ministry-run mines. About 95 percent of the coal produced by Ministry-run mines were recovered by miners. Now, there are 543 pairs of pits and 13 open cast mines. On the average, the mining pits have 2,096 coal faces, and the greatest mining depth has reached 1,000 meters. Following are the distribution of coal outputs from coal seams of different dip and thickness measurements:

Seam Dip (Percent)		Seam Thickness (Percent)	
gently inclined	82.2	thin	12.7
inclined	12.2	medium	43.3
steep	5.6	thick	44.0



## 1. Coal Resources

Our country not only has rich coal resources, but also a long mining history. According to the annals, the Chinese people were already familiar with the use of coal as far back as 475-221 B.C. By the 1st Century A.D., coal mining had reached a fairly large scale, and coal was used for iron smelting. Since the liberation of China, a great deal of geological surveying work has been carried out. Up to now, the total proven reserves throughout the whole country have reached 640 billion tons. The coal formation ages in our country are early geological periods, and there are numerous coal forming epochs. There are stone-like coal deposits which had formed from algae in the early Palaeozoic era. The formation of the coal resources occurred primarily from the Early Carboniferous epoch to the Tertiary period. The richest formations are Jurassic, Permian and Carboniferous, the total coal volume of which account for over 95 percent of the overall coal reserves. The coal resources are widely distributed all over the country. The total area of coal-bearing strata amounts to some 500 thousand square kilometers, which is approximately one-eighteenth of the land area. With the exception of Shanghai, all thirty provinces, cities and autonomous regions (including Taiwan Province) throughout the whole country have coal resources. Roughly, there are five coal-bearing areas: the Northeast, North China, South China, the Northwest, and Yunnan-Xizang Coal Regions. The North China Coal Region has the greatest reserves, accounting for approximately 40 percent; the Northwest has approximately 32 percent, and the Northeast accounts for about 21 percent.

China has a complete assortment of coal varieties; lignitic coal accounts for 8 percent of the total reserves, non-caking and weak-caking coals account for 28 percent, low-metamorphosed bituminous coal 31 percent, medium metamorphosed bituminous coal 8 percent, highly metamorphosed bituminous coal 6 percent, anthracitic coal 9 percent, and 10 percent is composed of assorted coals. Our country has fairly rich resources of coking coal, over half of which is gas coal. In terms of coal rank, Jurassic coal is generally regarded as fairly good as it has relatively low ash and sulphur contents; in North China, Carboniferous coal has relatively high sulphur contents, Permian coal has relatively low sulphur contents, but their ash contents are rather high. The geological conditions of China's coal-fields are diversified; the thick coal seams are characterized by great specific gravity, and most of them are coal measures with fairly short interlayer distances. In some mining areas, the hydrogeological conditions and geological structures are comparatively complex. The methane gas contents are rather high.

## 2. Coal Mine Construction

After the founding of New China, tremendous efforts have been made to expand the productive capacity of mines, and technological improvements were carried out in some old mining districts, thus greatly enhancing their productive capacity, e.g. Datong, Kailuan, etc. Meanwhile, a number of new coal bases have been built, including Pingdingshan, Huaibei, Xuzhou, etc., which can produce over 10 million tons of raw coal per annum; Xishan, the Two Huais [i.e., Huainan and Huaibei in Anhui Province), Shitanjin, Liupanshui, etc., which can output over 5 million tons of raw coal annually. It takes approximately 6-8 years to build a pair of large size mines, and 5-6 for medium size mines.

Owing to the complex geological conditions, many different kinds of special tunnelling techniques are employed in the construction of mines. In the construction of 330 vertical shafts, such special tunnelling methods as freezing, boring, drop-shaft, injector, curtain, etc., were employed. The freezing method, in particular, was used to build 187 shafts; the largest shaft diameter is 8 meters, and the maximum freezing depth is 345 meters. The boring method was used to build 24 shafts, the diameter being 7.9 meters, and the maximum 308.6 meters. In recent years, such rigging equipment as 0.6 cubic meters rock machines, umbrella drilling rigs, 3 cubic meters buckets, winders, high-head suspended pumps, etc., have been employed in ordinary vertical shaft tunnelling operations. The highest monthly record ever attained in shaft construction has reached 120 meters.

Over the past few years, the construction scale of mining shafts (including open cast mining shafts) is about 100 million tons. In order to ensure coal output increases, it will be necessary to step up and expand the current scale of construction. In view of such factors as coal reserves, coal demands, traffic conditions, and investment results, Shanxi, North China, the Northeast and Henan will be the keypoint areas of construction for a period of time. Shanxi Province abounds in coal resources, and its proven reserves is 200 billion tons, accounting for one-third of the nation's total reserves. Moreover, this province has a complete assortment of coal varieties, which can be recovered from fairly shallow deposits. As the geological structure is simple, it is possible to develop vertical shafts, inclined shafts, adits, and open cast pits, which require little investment but can produce quick turnovers, and will enable the entire province's coal output to reach over 200 million tons per annum. Dadong, Shuoxian, Yangquan, Lu'an, Pucheng, Xishan, Gujiao, Xiangning will become the province's chief coal bases. East China is the most economically developed area in our country. It has vast coal reserves in the Two Huais, Yanzhou and Xuzhou Mining Districts. These mining districts are close to sea ports and railways which makes transportation quite convenient. These areas are to be energetically developed. The Northeast is a major industrial base which consumes large quantities of coal. It has bountiful coal resources in Liaoning, Heilongjiang, Nei Monggol provinces and regions. The coal seams are fairly shallow in such areas as Yiminhe, Huolinhe, and Yuanbaoshan, which is suitable for open cast mining. The coalfields in the central and western parts of Henan Province are ideally situated in terms of geographical location, and await further exploitation. Such mining districts as Pingdingshan will be further developed.

The policy of simultaneously developing large, medium and small mines will continue to be the guideline for the construction of coal mines. While large-scale coal mines, medium and small pits will also be built in accordance with resources conditions, large numbers of local small coal pits will also undergo gradual technical innovations.

### 3. Coal Production

Among the various coal mines run by China's Ministry of Coal Industry, the longwall coal-mining method is chiefly used for recovering coal from gently inclined and inclined coal seams. The inclined top-slicing caving method and flushing/ascending method are used for coal seams that are especially thick. In pitch



mining, the following methods are employed: yielding shield support method, overhand method, and horizontal slicing method. The hydraulic mining method is applied in coal mining areas with suitable conditions. Following is a comparison of the current recovery rates resulting from several major coal mining methods:

single longwall	46.8 percent
flushing	3.4 percent
room-and-pillar/abandoned pillar	5.2 percent
horizontal slicing	0.6 percent
inclined slicing	31.7 percent
tool-pillar (?)	4.9 percent
hydraulic coal mining	2.3 percent
others	5.1 percent

At present, the following kinds of support/shields are used in coal faces: long-wall coal faces generally employ single frictional metal props, a small number of work faces use single powered supports; approximately 100 coal faces use hydraulic powered supports; and some work faces employ wooden props. The chief kind of frictional metal props are microbearing series. The external and internal injection single powered props have also become a series of their own; their initial supporting power is 7-11.8 tons; the working resistance is 25-30 tons; the pillar height is 0.6-2.5 meters. Today, our country uses three kinds of powered supports in production, i.e., the prop type, the prop/shield type, and the shield type, the working resistance is 2 x 75 to 4 x 150 tons, the height of the supports amount to 0.92-3.5 meters.

The chief kinds of coal mining machines employed are 80, 100 kW single-ended coal winning machines and 150, 170 kW double-ended machines, 80 kW planing machines. The general means of conveyance are 80, 150, 250 kW double-chain scraper conveyors, and 180 kW single-chain scraper conveyors, which can convey 150, 250, 500 and 600 tons of coal per hour respectively. Generally, the mechanized working face of coal mining machines are powered by 660 volts electricity. A small number of coal faces are using 1,140 volts explosion preventive electric equipment on trial basis.

In coal production, steps are also being taken to gradually increase the mechanization level of coal mining. In 1980, the coal mining mechanization level of Ministry-owned coal mines was 36.8 percent. This included combined mechanization level, which was 13.1 percent; the average monthly combined work face output amounted to 33,680 tons; the mean work face efficiency was 13.3 tons per man-shift; the highest annual output reached 925,000 tons. As a whole, the mechanization level, technical equipment, and work efficiency of China's coal mines are still comparatively low and require further improvement.

#### 4. Coal Utilization

In China, the consumption of coal by common industries, thermal power stations, civilians, coking industry and railway transportation are as follows: 46.5 percent, 20.3 percent, 18.1 percent, 10.6 percent and 4.4 percent respectively.

At present, in our country, approximately 100 million tons of raw coal are sent to the washery each year, producing more than 50 million tons of prepared coal annually. Here, coking coal is the chief kind of raw coal which undergoes preparation. This includes difficult coal and extremely difficult coal. Jigging and flotation are the chief methods employed in coal separation. In some coal mining districts the heavy medium separation method is employed for difficult coal. Our country can produce in batches complete sets of equipment for washeries with washing capacity below 2 million tons per annum. It has already begun to develop and manufacture the chief equipment for large washeries which can handle over 3 million tons per annum. Some washeries have set up centralized monitoring systems for total plant control. Some plants are using total automation systems on trial basis.

In our country, gas coal accounts for more than one-half of the caking coal as the proportion of cindery coal is comparatively low. At present, research efforts are under way to find suitable plans for coking mixed coal in various regions, and also to find coking techniques primarily for coal gas. Low calorific fuels are extensively used in the southern provinces of China and in the vicinity of some coal mining districts for boiling furnaces and manufacturing construction materials; chemical raw materials are extracted from stone-like coal and coal wasters (e.g., vanadium pentoxide, polymeric aluminum, etc.). In our country, approximately 250 million cubic meters of gas are produced each year and used for combustion as well as manufacturing such chemical products as carbon black. To properly utilize coal, facilitate transportation and reduce pollution, researchers are trying to develop highly efficient coal gasification and direct coal liquefaction techniques.

#### 5. Mine Designing and Machinery Manufacturing

The coal industry in our country has set up its own designing organizations. At present, there are 29 designing institutes, 8 of which belong to the Ministry of Coal Industry. The designing contingent is composed of nearly ten thousand staff workers. Each designing institute has its own force of technical experts and engineers who possess rich experiences in designing work. Over the past three decades, some 1,500 pairs of mining shafts have been designed and constructed (open cast mining) and their overall projected capacity is 480 million tons; more than 150 washeries have been designed and built, and their total projected capacity is 100 million tons. China has also designed and constructed explosive plants, construction material plants, machinery repair and manufacturing plants, as well as special railways and highways. In addition, we have also helped other countries design mines and washeries.

China's coal industrial system has 34 key machinery manufacturers with 65,000 staff and workers plus 200,000 tons of annual processing and manufacturing capacity chiefly devoted to producing coal mining machinery, equipment and instruments, e.g., probe drilling, geophysical exploration, excavation, transportation, support/shield operation, safety, etc. The First Ministry of Machinery Building has factories which produce equipment for hoisting, ventilation, and drainage, as well as some of the equipment used in open cast mining and coal dressing. China is now capable of producing in batches all kinds of powered supports, single powered props, emulsion pump stations, double chain conveyors, transfer machines, belt conveyors, 80 and 100 kW single-ended coal winning machines, 150 and 170 kW

double-ended coal winning machines, tunnelling machines, large vertical shaft construction equipment, various types of safety instruments, meters, etc. At present, we not only can satisfy domestic needs, but also exportation to other countries.

## 6. Coal Education and Research

Our country has colleges and schools which specialize in training people to work in the coal-mining industry. At present, there are 12 coal mining colleges with over 14,000 students; 36 polytechnic schools with some 18,000 students; and 100 technician training schools with 45,000 students. Besides, there are over 14,000 people taking coal mining courses in sparetime schools, telecourse colleges, university correspondence courses and all kinds of special training classes for cadres.

There are three types of research organizations in the coal science research system, i.e., the [Chinese] Academy of Coal Sciences which is subordinate to the Ministry of Coal Industry and covers the whole country, provincial (regional) coal research institutes which are concerned with major coal producing provinces (regions); and research institutes which belong to factories and mines.

The Academy of Coal Sciences focuses mainly on major technical problems in coal industrial production and construction as well as related techniques and basic theories. Established in Beijing in 1957, it now has 11 disciplinary research institutes, 3 of which are in Beijing, and the rest are located in Fushun, Taiyuan, Tangshan, Xi'an, Shanghai, Chongqing, Huaibei, and Changzhou. It also has a scientific research and development center in Changzhou. The Academy is staffed by some 5,000 personnel, approximately half of which are scientific and technical workers. At present, the main direction of its scientific research is to improve the precision and speed of exploration, reduce mine construction period, develop mechanization of tunnelling operation, perfect safety techniques which emphasize prevention, and properly utilize coal resources.

For over the past three decades, China's coal industry has developed tremendously. Adjustments are now underway to enable the coal industry to better adapt to the needs of the national economy, and advance steadily. By relying on our own resources, we must continue to develop international cooperation, enhance scientific and technical exchanges, and thus further develop coal industry and coal sciences and technology.

On the principle of mutual benefit, we are willing to adopt any form of joint exploitation venture with friendly countries and private enterprises. We are also prepared to provide all sorts of technical assistance to friendly nations and contribute our part to solving the overall energy problem.

## ENERGY

### SCIENTIFIC MANAGEMENT OF COAL MINE POWER CONSUMPTION

Beijing MEITAN KEXUE JISHU [COAL SCIENCE AND TECHNOLOGY] in Chinese No 6, Jun 81  
pp 47-49

[Article by Zhang Shuangju [1728 7175 5112] of the Power Department, Production Division, Ministry of Coal Industry: "The Utilization of Electricity in Coal Mines and Ways of Economizing Electric Power"]

[Text] In modern coal mines, power consumption is the chief manifestation of energy consumption. Hence, the conservation of electricity constitutes a major proportion of coal mine energy conservation work. Due to different conditions of various coal resources, plus differences in technical equipment level and management level, there are great power consumption gaps between the various coal mines. Among coal mines under the unified distribution system, the consumption of electric power per ton of coal output can reach as high as 92 watts in some mines, while some merely consume 14 watts. Even within the same mine, the power consumption level is bound to rise as the working face grows continuously deeper and further away while the hoisting height and hauling distance increase, and the outflow volumes of gas and water become increasingly larger. To improve operational conditions and enhance work productivity, it is necessary to increase the degree of mechanization in mining work, which also leads to greater consumption of power. According to statistics of 1970-1979, the recovery depth of coal mines under the unified distribution system increases progressively by an average of 4.6 percent per annum; on the average, the combined power consumption per annum progressively increases by 2.5 percent for each ton of coal produced; the gross electric power consumption of all the mines progressively increases by an average of 8.2 percent each year. The ascent in power consumption level is determined by the characteristics of the mines. Without improper use of electricity, it would be quite reasonable to assume that the rising level of power consumption indicates the ever-growing depth of the coal face as well as the ever-upgrading level of coal mining technical equipment. When the coal output increases, it is quite normal to have increases in the overall power consumption of mines. But, there are also quite a few coal mines which waste power due to inadequate enterprise management, improper use of equipment and failure to replace old and inefficient equipment, which is not the proper way of using electricity. The aim of power conservation work is to put an end to improper power consumption and ensure proper use of electricity.



Every link in coal production is furnished with a certain amount of equipment; each equipment consumes power in the course of operation. Thus, the main way to save electricity is to enhance enterprise management, improve equipment conditions, properly centralize production, and operate equipment economically. Due to the many differences that exist among various coal mines, their potential capacities for conserving electricity also vary. Therefore, it is imperative to conduct surveys on power consumption, make necessary technical tests and evaluations, and find out the potentialities for power conservation before taking appropriate measures against the main obstacles and thus attain better results in power conservation work. In recent years, under the guiding principles underlying the readjustment of the national economy and guided by the policy of "stressing both the development and conservation" of energy sources, all the mines have put in a tremendous amount of effort into the drive to save electricity, and have achieved fairly good results. Based on the practical experiences of all the organizations, and in light of the current coal mining situation, here are some power conservation measures that are easy to achieve and worth popularizing.

#### 1. Enhance Electric Power Control and Make Timely Load Adjustments

The power system links the electricity generator, power supply and electrical equipment into an integrate body. Thus, the stability of the load bears a certain amount of influence on the utilization of the power system's capacity and the economical use of the equipment. Actually, peak loads are bound to occur at certain times each day within a power network. The greater the peak load is, the greater impact the power grid comes under. Enhancing the power control by avoiding peaks, using off-peak hours, and increasing the load rate not only helps to utilize the capacity of the power system, but also helps the users to cut down on electricity bills, which is very important. The Benxi Mining Bureau has 30 power controllers in five of its production mines; their job is to properly fix the on/off hours of the equipment, make timely adjustments on the load, and determine the peak and off-peak hours in accordance with the load curves and production situation, thus maintaining the load rate of all the mines above 87 percent. In 1980, an average of 2,500 kW was taken off the maximum load, and the entire province managed to save 150,000 yuan from the maximum load power costs.

The practice of running zero load or half load equipment over a long period of time not only prevents full use of the equipment's capacity, but also increases power consumption. The timely readjustment of improperly used equipment produces striking results in power conservation. Since 1980 when Baotou's Changhangou Mine made proper load adjustments in accordance with its production situation by cutting down two 320 kVA transformers, replacing 75 kW and 100 kW water pumps with a single 115 kW pump, it has saved 150,000 watts of electric power each year, which represents 1.5 percent of the annual power consumption.

#### 2. Add Power Efficiency, Reduce Useless Consumption

The power efficiency is an important technical/economic index in power supply management. It represents the effective use of electric energy. By raising the power efficiency, it is possible to enhance the effective power supply capacity of the power grid, reduce circuit losses, and cut down electricity bills. At



present, of all the coal mines in the whole country, there are still 14 bureaus (mines) whose power efficiencies are under 0.85 and have to pay fines for [low] power efficiency to the Ministry of Electric Power Industry. To increase their power efficiencies to 0.9, these organizations will have to instal 150,000 kVAR capacitors, which costs approximately three million yuan but can reduce circuit losses and save about 30 million watts of power each year (which includes decrease of circuit losses both in the Ministry of Electric Power Industry and mines). On top of this, the coal mines will also receive over one million yuan's worth of power-efficiency bonuses each year, and obtain extremely remarkable economic results as well. Since 1979, the Shuangyashan Mining Bureau has increased its power efficiency from 0.81 to 0.91 by installing 7,000 kVAR capacitors, popularizing the synchronization of wound-rotor motors, adjusting loads and removing 400 kVA transformers. In the past, it had to pay more than 200,000 yuan of power efficiency fines; now, it receives bonuses of over 200,000 yuan each year, and the results are quite remarkable.

### 3. Improve/Renew Equipment, Enhance Operational Efficiency

Our country lacks frequent renewal of products or equipment; much of the equipment in our mines now were produced in the 1940's or 1950's, and the machines are of poor efficiency and consume a lot of power. Improvement or renewal of such equipment can increase operational efficiency and save electricity. The power consumption of water drainage equipment in coal mines of the unified distribution system account for approximately 25 percent of the total power consumption; over one-half of the drainage equipment in current use are old or outdated hardware. If such equipment could be renewed, and low-efficiency pumps could be replaced with high-efficiency ones, it would be possible to make up the equipment renewal expenses with the amount of money saved from the electricity bill within approximately one year. For example, by replacing an SSM200x7 type water pump with a newer 200 D43x7 model, it is possible to raise the efficiency by more than 10 percent and save approximately 170,000 watts of electricity each year; the amount of electricity bill saved in one year alone is almost enough to purchase two water pumps (excluding motors). At present, our coal mines are using quite a number of 70B-2 type axial-flow fans and 4-62 type, 9-57 type centrifugal-flow fans which all have fairly poor efficiency. It is possible to make technical innovations on the 70B-2 axial-flow fan by installing bent-blades, which helps to increase the efficiency by approximately 5 percent. With the help of paddle-wheels from 4-72 type centrifugal fans, it is possible to improve the 4-62 or 9-57 fans and increase their efficiency by 15-30 percent. Generally, the costs entailed in the technical innovation of the preceding equipment can be recovered in about half a year from power conservation, and the economic results are fairly good. According to preliminary calculations, if 3,000 low-efficiency pumps are renewed in unified-distribution coal mines, it is possible to save approximately 300 million watts of electricity per year. If 1,100 low-efficiency fans are innovated in these mines, approximately 140 million watts can be saved each year. The renewal and innovation of the two preceding kinds of equipment cost about 28.5 million yuan; approximately 31 million yuan can be saved from the electricity bill each year. The economic gains are quite evident.

Over the past two years, many coal mines have managed to save an enormous amount of electric power through equipment renewal and innovation. The Benxi Mining Bureau

improved 31 SSM type pumps, adjusted 2,900 meters of pipelines, pumped water without bottom valves, and thus increased the drainage efficiency by 8 percent. Moreover, 2.5 million watts of electricity were saved in 1980, which amounted to 1 percent of the total power consumption. Based on variations in the underground ventilation system, the Liaoyuan Mining Bureau adjusted the working point of two fans by reducing the rotation speed, and improved the performance of two axial-flow fans by mounting bent blades, thus conserving 2.1 million watts of electricity annually, which amounts to 1.2 percent of the total power consumption. The Lu'an Mining Bureau equipped all of its 18 working faces with troughed belt conveyors, and replaced scraper conveyors with belt conveyors, thus reducing over one-half of the power consumption and saving 130,000 watts of electricity each month, which improved the conveyance capacity and reduced transportation casualties and maintenance crew. Thus, it is quite plain that equipment renewal and innovation not only help to improve efficiency and conserve electricity, but also help to improve working conditions and, to a certain extent, promote production.

#### 4. Stop Leak Holes and Reduce Losses

Due to improper maintenance and management, quite a number of coal mines have leak problems in their ventilation systems, blower systems and drainage systems. In some cases, the leakages in the reversing doors of the main fans are as much as 15 percent; and in some blower pipelines, the losses incurred from air leakage reach 15-20 percent. An enormous amount of electricity can be saved by strengthening maintenance and management, promptly plugging up leak holes, stopping air and water leaks. Last May, the Gaokeng Mine of the Pingxiang Mining Bureau checked the consumption rates of blowers in all its mining and excavation areas; then, it made proper adjustments in the pipeline system, set up certain a schedule for turning on the blowers, fixed up 96 air leakage spots, and removed 1 km of useless pipes, thus succeeding in reducing 40 percent of the blower losses and saving 100,000 watts of electricity. The Pingxiang Mining Bureau popularized the experiences of Gaoheng Mine, enhanced management of the blower systems, and reduced losses. In the third quarter, 25 percent of the blower system's consumption rate was cut down as compared with the second quarter, and 107,000 watts of electricity was saved. In the Macun Mine of the Jiaozuo Mining Bureau, the drainage system had collected 6 mm of dirt on the pipe walls due to long period of use; after cleaning the pipes, the wall-friction losses dropped, and the drainage efficiency rose 5 percent.

Some coal mines fail to promptly fill up useless tunnels and drill holes. As a result, the drainage increases and more power is consumed. By plugging up useless tunnels and drill holes on time, striking results can be attained in cutting down drainage power consumption. Due to relatively large water-make in the mining pits, the drainage power consumption of the Jiaozuo Mining Bureau had accounted for approximately 60 percent of the total power consumption. The bureau built water-proof walls in the mines, injected slurry into the ground and sealed up drill holes. It also stopped the water gush in Tianmen Pit's Zone 2, Lifeng Mine's Zone 48, Zhucun Mine's Southeast Zone; as a result, a total of 29 tons/minute water-make was cut off, thus saving over 5 million watts of drainage power annually, and reducing the electricity bill by more than 300,000 yuan.

#### J. Strengthen Control over Use of Electricity in Living Quarters

Generally, the living quarters in mining districts account for 3 percent of the total power consumption. Although this portion of electricity consumption does not occupy a large proportion, it nonetheless represents quite a lot of untapped potential. Due to poor management and inadequate metering devices, some organizations have quite a few problems arising from improper use of electricity, such as large bulbs and 24-hour lighting. There are quite a number of organizations which have managed to enhance control over the use of electricity in living quarters, i.e., installing electric meters, charging electricity bills according to meter readings, abolishing the fixed billing rate system, and basically putting an end to improper use of electricity, such as large bulbs and 24-hour lighting, which helped to greatly reduce electricity consumption in living quarters. The Lu'au Mining Bureau intensified electricity management in living quarters by installing more than 1,600 electric meters in family dormitories, implemented the metered billing system, and cut down the entire bureau's lighting load from 870 kW to 659 kW, amounting to 24 percent.

It should be pointed out that besides the preceding power conservation measures, it is also very helpful to step up enterprise management, improve overall arrangement of production, implement proper centralization of production, start economic operation of equipment, popularize new power-saving technologies, such as far infrared drying, industrial resistance furnaces improved with aluminum-silicate refractory fibers, electric machines with power brakes, etc. As each mine varies in management level and natural conditions, it is imperative to combine power conservation with the specific conditions of each organization, adopt key measures that are right on target, and tap power-conservation potentialities. This way, greater results can be achieved.

9119

CSO: 4006/395

## ENERGY

### BRIEFS

**ANHUI COAL DRESSING PLANT**--Hefei, 17 Jul (XINHUA)--A coal dressing plant with an annual capacity of 1.8 million tons has gone into operation in Suxian County, Anhui Province, according to the Huaibei coalmining administration. The Luling coal dressing plant, built on the Tianjin-Pukou railway line, is a key project of Anhui's Huainan and Huaibei coal base. The direct flotation technology is being used for the first time with equipment made in China. The plant uses locally mined coal, which has a low level of ash and sulphur. The plant will help raise industrial production in East China. The Huainan and Huaibei coal base has proven deposits of well over 22,000 million tons. One mine has been completed and six other pairs of shafts are being built. [Text] [Beijing XINHUA in English 1217 GMT 17 Jul 81]

**HEILONGJIANG PETROLEUM SUPPLY**--The Heilongjiang Provincial Economic Commission, the Trade Union Council, the Scientific and Technological Association and the Commercial Bureau jointly issued a circular: Beginning 1 September, petroleum companies at all levels throughout the province will supply 50 percent of petroleum used in cleaning metals to industrial and communications departments and substitute the other 50 percent with metal detergent to conserve petroleum. This metal detergent is a valuable new product, and it is a proven metal cleaner and can prevent metal from becoming rusty, lower the costs, improve conditions and protect workers' health. [SK302322 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 28 Aug 81]

**ANHUI COAL INDUSTRY**--To accelerate development of energy sources, the Anhui provincial people's government recently decided to set up a provincial coal industry leading group. The leading group is composed of comrades (Kang Zhijie), (Jiang Derong) and (Zhang Jianyi) with (Kang Zhijie) as its leader. The group exercises unified leadership over coal production and capital construction in the province. [OW07622 Hefei Anhui Provincial Service in Mandarin 1100 GMT 5 Sep 81]

**OIL FIELDS DISCOVERED**--Oil and gas fields with 15 to 20 tons daily output per well have been discovered in the northern part of the Dongpu Depression in central China, according to Liu Songwei, geophysicist of the China Petroleum Exploration Development Company. Dongpu Depression, this hydrocarbon-bearing area near Zhengzhou, is in the southwestern part of the North China basin and covers an area of about 4,800 square kilometers. It is a sedimentary depression of the mesozoic-cenozoic group which is 7,500 meters thick, said Liu Songwei who is in Beijing attending a joint meeting of the Chinese Geophysical Society and the

Society of Exploration Geophysicists. The oil deposits are somewhere from 1,400 to 3,500 meters below the land surface. They are generally from 15 to 25 meters thick. Geophysical exploration of the Dongpu Depression began in 1955 and seismic exploration started in 1969. It is relatively easy to do field seismic work on the surface of the depression which is a cultivated plain, Liu said, however, there are difficulties in working in the river beds and banks of the Huanghe which runs across the whole area. Seismic exploration will be shifted to the western and southern parts of the depression in the future, he said. [Text]  
[HK100332 Hong Kong TA KUNG PAO in English 10-16 Sep 81 p 1]

CSO: 5000/4093



## INDUSTRY

### MEASURES TO MAINTAIN STEADY INDUSTRIAL GROWTH STUDIED

Shanghai JIEFANG RIBAO in Chinese 3 Aug 81 pp 1, 3

[Article by unidentified correspondent: "Measures To Maintain Steady Industrial Growth in Shanghai--Difficulties in Increasing Production Encountered Despite Fine Situation, According to Comments by People in Economic Circles of Industry and Communications During First 7 Months; Four Important Questions Raised"]

[Text] During the first 7 months of this year, the total output value of the industrial-communications sector was 0.3 percent below the same period of 1980, and the net production in heavy industry was more than the net increase in light industry. Furthermore, this trend may continue on an even larger scale. This will raise some thought-provoking questions: Is the present situation with regard to industrial production good or bad? How can a steady increase in production be maintained during the readjustment period?

#### Industrial Product Mix Tends To Be More Rational

Some people in local economic circles have felt that in judging the situation with regard to production, we should not confine our observations to figures; instead, we should see through the outer appearance of figures and study the essence of the problem. Basically, the present situation is good for production according to the present trend of development. Although the total output value for the first 7 months was below that of the same period in 1980, some striking changes have occurred in the makeup of output value. From January to June, for example, there was a marked increase in the production of key items of consumer goods for daily use. During this period, the output value of 22 different consumer goods that indicate consumption trends was above that of the same period last year by 16.9 percent. Apart from the reduced production of certain items that were not readily marketable, such as tape recorders and furniture, there was an increase in the production of many other items compared with the same period the previous year. The varieties and designs have also been increased. The administrative bureaus of the textile industry, light industry, and handicrafts have successfully trial-produced 329 different new products and more than 12,000 new designs. The ratio of new varieties and new designs in serial production was raised from 70 percent in 1980 to more than 85 percent in 1981. There was a sharp drop in the production of capital goods required for heavy industry and capital construction, but a large increase in the production of items in short supply in the market and of equipment and raw materials required for the light and textile industries. The output value of 106 short-supply items by the First Machinery

and Power Bureau in the first half of this year showed an increase of 22 percent--including a 27-percent increase in light industrial machinery--over the same period last year. The ratio of light industrial products (including textile, handicraft, and electronic products for civilian use) to total industrial output in the municipality increased from 52.6 percent in 1980 to 54.8 percent in 1981. Because of greater attention to market needs in the organization of production and the constant readjustment of the product mix, goods are now more readily marketable, instead of being kept in warehouses over long periods as they were before. Thus the turnover of circulating capital has accelerated, with great economic benefits. All this shows that in the past 7 months, Shanghai's industry has been based on market demands, with priority being given to the production of consumer goods. The product mix has become more rational, and, in the course of readjustment, industrial production is now undergoing a healthy development in accordance with objective economic laws.

#### Great Enthusiasm of Broad Masses of Cadres and People

Some people in economic circles have also held that in judging the situation of production, we should not confine our observations to indexes; instead, we should also note the mental attitude of the broad masses of cadres and people. At present, morale is very high among the cadres and workers of all trades and professions, and they are making every possible effort to enliven the economy and produce better economic results. Although light, textile, and handicraft production has increased year after year by a wide margin, and productive capacity has basically reached the saturation point, they are still trying hard to tap the potential for further increases. Since the beginning of this year, the textile sector has on three occasions mobilized its personnel to make greater contributions to the state by increasing both production and revenue through the renovation of equipment, the readjusting of varieties, and the tapping of potential. The light industrial sector has constantly changed varieties and designs according to market demands in order to upgrade its products. Many forms of rewards have been tried out to increase the production of readily marketable goods. Acting in accordance with the principle of overall planning, the handicraft sector has broken through the barriers set up for the division of work among companies and has readjusted its product mix and enterprise management in order to produce more brand-name goods and goods in short supply. All departments of heavy industry have continued to reorient their service, to expand the scope of their activities, and to increase their avenues of production. The Metallurgical Bureau organized the enterprise under its jurisdiction to study market conditions and to work out plans and measures for producing the correct amounts and specifications of steel materials required to turn out the seven major light and textile items, including bicycles and textile machinery. The Chemical Industry Bureau has renovated and utilized some of its "sunlight exposure" items in order to increase the productive capacity for solar ion dyestuffs and other items in short supply. The First Bureau of Machine Building has taken the initiative to establish contact with 90 design institutes throughout the country and to cooperate with 141 machinery and power equipment companies in developing the sales of products by state-owned enterprises through private stores, or in undertaking production tasks for them. It also has formed 32 groups out of 70 plants for the production of machinery and power products in short supply. Commercial, foreign trade, financial, capital construction, and municipal administration departments have also done a great deal of work in supporting and encouraging plants and enterprises to implement the policy of readjustment by producing goods in short supply, bringing about a balanced supply and demand in the market, and boosting export trade. Thus the main feature of the present situation can be reflected from another angle by the high morale in various trades and professions.

## Problems in Even a Fine Situation

Of course, a fine situation in production does not preclude the existence of problems. At present, the fairly serious difficulties encountered in Shanghai's industrial production is one of our main problems. Shanghai belongs to all the people in the country, and the rate of its industrial growth has an important bearing on the entire national economy and on the living conditions of the broad masses. We oppose the one-sided quest for output and output value regardless of the objectives of production; however, we hope for a higher rate of increase in the production of goods in short supply and easily marketable goods, including the raw materials and technical equipment required for producing these goods. This is only logical. The difficulties encountered in the industrial growth of the municipality are caused mainly by the change of certain elements during economic readjustment. Formerly, the production of steel was regarded as the key link of our national economy, and priority was given to heavy industry. The substitution of the development of consumer goods to satisfy people's material and cultural needs, in place of irrational cycle of the productive process within heavy industry, and the coordination of the production of capital goods with that of consumer goods in a healthy manner are important reforms, but during these [reforms] many new conditions and contradictions may emerge that temporarily affect production in certain departments. Furthermore, for many years within the industry itself, attention was paid only to production and to the tapping of potentials, but not to the improvement of production conditions or to facilities for daily living. Our neglect of the technical transformation of enterprises and the serious problems with the industrial layout and product mix have all contributed to the difficulties. This reflects on the arduous and complex nature of economic readjustment.

## Four Problems To Be Solved in Maintaining a Steady Rate of Growth

In view of the real situation of industry in the municipality, how can we maintain a steady rate of growth during the readjustment period? Some well-informed people among economic circles have held that we should now pay particular attention to solving the following problems:

First, make greater efforts in technical transformation and equipment renovation so as to bring about expanded reproduction through the "intensive" method.

In the majority of industrial plants in Shanghai, particularly those plants engaged in light, textile, and handicraft industries, the workshops are too old and overcrowded. With their backward equipment being overused, their productive capacity has already reached the saturation point. During the present economic readjustment and reduction of the scale of capital construction, these enterprises, no longer able to expand their reproduction by the "extensive" method, can only resort to the "intensive" method. There should be specific measures for expanding reproduction by the "intensive" method; otherwise with the "extensive" method already ruled out and the "intensive" method only vaguely defined, nothing can be accomplished at all. A host of facts have proved that any units with specific measures for taking the "intensive" road and actively carrying out technical transformation and equipment renovation will be able to develop their production rapidly. The Shanghai Woolen Blanket Plant formerly produced acrylic fiber blankets. Output was low and quality was poor. The technicians at this plant studied the characteristics of acrylic fibers and renovated the production line. After the completion of the new production line, output increased



by 80 percent and the up-to-standard rate was over 90 percent. Last year this plant produced 400,000 woolen blankets, and it expects to increase its output by a further 40 percent or more this year. The No 7 Woolen Textile Mill, formerly using outdated British machinery of the 1930's, operated at a slow speed and produced goods of inferior quality. The workers copied the features of the high-speed fine yarn machines used in woolen textile production and brought per-unit output up to the equivalent of 600 additional spindles, thus effectively tapping the potential for increased production. In the first half of this year, the total output value of the woolen textile trade in the municipality was increased by 5.5 percent over the same period of the previous year. The main reason for this increase was the renovation of equipment, which increased productive capacity. People in economic circles have held that greater efforts in technical transformation and equipment renovation will not only expand the productive capacity of the light, textile, and handicraft industrial enterprises but will also give impetus to machine industry production. Thus the input of heavy industry and the output of light industry will form a harmonious cycle. There are many industrial trades in Shanghai with very many old enterprises among them to be transformed. In order to renovate and transform these old enterprises in separate groups in a planned and systematic way, the relevant departments in charge have recently conducted investigations into three different trades--knitwear, food, and leather--and worked out plans for gradually popularizing the experiences of some typical examples. This action is very necessary.

Second, bring into play the strong points of Shanghai and expand export trade as a national concern.

Shanghai is located on the coast and has a long history of industrial development and a certain foundation of technology. Its export trade is very promising. The industrial goods of Shanghai must find their way into the world market. We should adopt the method of supporting exports with imports and using exports to draw in imports. With imported materials, we can produce high-grade products, promote our production, and expand our exports. We can also import advanced technology to raise our technological level in our production and to increase our competitive power abroad. We should try every possible way to enliven our exports and find a new road for our foreign trade. Because of the economic readjustment this year, plus the scarcity of domestic orders received, the shipyards of Shanghai for a while operated under capacity. Later, after studying the international market, they took timely action to direct their efforts in exports. To date, they have already received orders for 49 ships totaling 510,000 tons and worth more than 400 million dollars. When working out its production plans early this year, the Shanghai Machine Tool Company was confronted with many contradictions and difficulties. The company actively increased the production of goods in short supply and provided special standard equipment for the production of consumer goods in daily use. While widening its scope of service, it also expanded the export of its products in various forms. In addition to the small- and medium-size lathes and other traditional products which enjoy fairly good sales in the foreign market, it added many new varieties, in line with the requirements of foreign customers, and undertook the processing of customers' materials according to blueprints supplied. Thanks to these new export channels, lathe exports increased by more than 30 percent over last year's figure.

Third, conduct in-depth investigations to obtain a good knowledge of the market, and then organize production according to market demands.

In order for the products to sell well, it is necessary to step up investigations of the market and to have good market forecasts and various information feedbacks. We should be well informed of various market demands and keep abreast of market development. We should particularly bear in mind that the countryside, with a population of 800 million, is a vast market. Along with the continued development of agricultural production, the income of the peasants has been increased, and there is a change in the trend of spending in the countryside. This calls for systematic investigations and forecasts of the vast rural market. Having a clear knowledge of market conditions, after making thorough investigations, the work of readjusting our products will be easier and production will increase more quickly. The porcelainware produced in Shanghai for daily use was not well received in the market because of a lack of variety. After an investigation of the market, the Municipal Porcelain Vacuum Flask Company became aware of the excessive supply of plain color products in the market, whereas the great demand is for basins, large round plates, and other containers with floral designs. All the plants concerned accordingly produced porcelainware with many varieties and designs in addition to other goods in short supply. By the middle of May, various types of porcelainware for daily use had made their appearance in brand-new designs at the national goods-ordering meeting held in Changsha, and there was a spate of orders from customers from various localities. By now, the majority of plants and enterprises have shown great attention to market forecasts and investigations, but the scientific method of doing these jobs well still needs improvement through practice so that the investigations will result in correct guidance for the production enterprises.

Fourth, pay attention to the intermediate links in the economic chain and do a good job of solving various new problems that may affect the development of production.

Judged from the angle of reproduction, production, exchange, distribution, and consumption are all closely united to form a single entity. All of these links must be well coordinated so that they can be mutually supplementary; dislocation of any of these links may bring about serious consequences. Products should be readily marketable. Therefore, production plants must bear in mind not only the problem of sales but also the industrial-commercial and industrial-foreign trade relations, as well as the solution of problems of prices, profits, foreign exchange subsidies, and so forth arising out of these relations, in order to enlist support from the commercial and foreign trade departments. To increase production, the enthusiasm of the broad masses of workers must be counted on. Careful handling of the bonus question will serve to link the contribution of labor with material benefits and will further consolidate and raise the enthusiasm of the workers and staff members. Some machine tool companies that formerly operated under capacity are now, with the help of foreign trade departments, actively making contacts with foreign merchants and are processing foreign customers' materials according to the diagrams supplied. Now, the Fourth, Seventh, and Eighth Machine Tool Plants and the Shanghai Heavy Machinery Plant are also cooperating with foreign merchants in production. While increasing production and practicing economy, the porcelain vacuum flask trade has revised its bonus system and is now integrating profits with rewards in various forms, such as rewards for above-quota production in the form of piecework payments among the plants or workshops. Thus, rewards are combined with the various systems of responsibility to arouse the enthusiasm of the workers and staff members in production. These instances clearly indicate the urgent need for well-coordinated production, exchange, distribution, and consumption as a means of developing production.



More than half a year has passed already. Because of the difficulties encountered in the attempt to increase production during the first 7 months, the task for the remaining months will be ever more arduous. At present, all bureaus, companies, and on down to the basic-level units are actively carrying out readjustment. According to the requirements of the readjustment, many trades and professions are going through the process of industrial reorganization and integration of enterprises, with production of consumer goods as their central task. On the basis of reorganization and integration, they are also consolidating the enterprises, improving their business management, and carrying out technical transformation. To help resolve various contradictions more effectively and to further implement the policy of readjustment, the municipality has set up a three-level regulation system along with the restructuring of the economic management system around the task of readjustment. Various forms of economic integration--including integration between enterprises, between production, supply, and marketing, between industry and commerce, and between industry and foreign trade--will be actively and prudently carried out as long as these measures can be conducive to economic results. They will create favorable conditions for increased production in the next 5 months. The Sixth Plenum of the 11th Party Central Committee has in particular summed up the historical experiences following the founding of the People's Republic and has completed its historical mission of setting right the party's guiding ideology. The people's study and implementation of the spirit of this plenum will have an important bearing on production in the second half of the year. The leadership at various levels should clearly understand the current situation, take advantage of this excellent opportunity, fully mobilize the broad masses, and work fervently by making good use of the favorable conditions in order to boost production in the next 5 months and maintain a steady growth rate in this year's production.

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## INDUSTRY

### SHANGHAI PLANTS PLAN PETROCHEMICAL COMPLEX

Shanghai JIEFANG RIBAO in Chinese 24 Jul 81 p 1

[Article by Li Zhenghua (2621 2973 5478): "Breaking Away From Departmental Ownership To Establish a Petrochemical Complex"]

[Text] Li Zhenghua, NCNA correspondent, reports that 7 factories and one research institute in the Gaoqiao Area, Shanghai, have been trying to break away from "departmental ownership" and get ready to consolidate as the Shanghai Joint Petrochemical Enterprise in order to make better use of petroleum resources, to exploit all the production potential and to increase economic efficiency.

According to the findings and estimates of the Shanghai Municipal Bureau of Chemical Industry and the Shanghai Financial Research Institute, if the state invests a little over 200 million yuan for necessary expansions after the merger of these petrochemical plants, the annual output value of the Shanghai Oil Refinery and the Gaoqiao Petrochemical Plant alone will jump from their current level of 1.3 billion yuan to as much as 2 billion yuan. The annual profit they surrender to the state will jump from the current level of about 300 million to more than 700 million yuan.

Having won the attention and backing of the leading cadres of the State Council, the project is now placed under the unified guidance of the appropriate ministries of the State Council and the Shanghai Municipal People's Government. Judged in the light of international data, the value of petroleum increases 10 times when it is processed into petrochemicals. The value will increase 10 more times when the petrochemicals are turned into end-products. That is to say, when crude oil is processed twice, the value of its end-products increases 100 times that of the raw material. According to the findings of the Shanghai Financial Research Institute, in 1980 the Gaoqiao Chemical Plant was able to turn 15,540,000 yuan worth of crude oil into 162,440,000 yuan worth of petrochemicals. This is 10.45 times the value of the crude oil. But the value of its end-products fell far short of the standard.

Today, the Gaoqiao area of Shanghai has 7 petrochemical plants and other enterprises which depend on petrochemicals as their major source of raw materials. They are: the Shanghai Oil Refinery, the Gaoqiao Chemical Plant, the Second Chemical Fibers Plant of Shanghai, the Second Synthetic Detergent Plant of Shanghai, the Shanghai Pesticide Plant, the 15th Dyestuff Factory of Shanghai

and the Shanghai Petrochemical Research Institute. In addition, there is the Gaoqiao Thermoelectric Power Plant which supplies these plants with steam and power. These enterprises are severally controlled by the Ministry of Petroleum Industry, the Ministry of Chemical Industry, and the Shanghai municipal bureaus of chemical industry, textile, light industry and electric power. Although these enterprises have become interdependent petrochemical processing units after years of mutual supply of raw materials and power as well as technological integration, the fact they are controlled by different departments still poses problems in actual production. Even enterprises within one department often find cooperation difficult because each has its own production and profit quotas to fulfill. The lack of coordination and reckless use of petroleum resources have led to severe waste of energy, wanton neglect of production potentials and poor economic efficiency.

Take the Shanghai Oil Refinery and the Gaoqiao Chemical Plant for example. The Shanghai Oil Refinery refines more than 4 million tons of crude oil a year, turning out principally fuel and lubrication oil. It also produces as it refines the crude oil nearly 50,000 tons of petroleum gas which may be turned into various chemical products. Instead of putting it to proper use, the petroleum gas is burned as fuel. The Gaoqiao Chemical Plant, just a few li away from the refinery, needs large quantities of petroleum gas to produce such chemicals as polystyrene, ABS engineering plastics and low pressure polyethylene. Due to lack of raw materials and equipment, the Gaoqiao Chemical Plant is unable to produce enough of these chemicals. As a result, the state has to spend large sums of foreign exchange to import these chemicals. The Second Chemical Fibers Plant and the Second Synthetic Detergent Plant, both in Shanghai, depend largely on the Gaoqiao Chemical Plant for raw materials. However, due to "departmental ownership," the supply is so undependable that their production has suffered setbacks. Such waste of petroleum resources has been widespread within the chemical industry in the Gaoqiao area. Consequently 30-40 percent of the chemical industrial facilities are not used efficiently.

The Shanghai Municipal Bureau of Chemical Industry and the Financial Research Institute had studied the situation both last year and this year. They recommend the formation of a joint petrochemical enterprise for the Gaoqiao area of Shanghai so as to coordinate the production operations of all the related plants.

According to their recommendation, the first step of the merger is to set up a central petrochemical plant consisting of the Shanghai Oil Refinery and the Gaoqiao Chemical Plant. This will serve as a base to bring together the remaining related factories to form an integrated system of specialization units conducive to greater productivity. The complex is expected to become the second petrochemical center of Shanghai, a match for the other petrochemical center at Jinshan.

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CSO: 4006/447

## INDUSTRY

### BRIEFS

SHANGHAI PRODUCTION TARGETS--Shanghai, 5 Sep (XINHUA)--Shanghai will overfulfill annual production targets by 100,000 bicycles, 100,000 sewing machines and 300,000 wrist watches in the remaining four months of this year, a spokesman for the municipal light industrial bureau said. This means Shanghai will try to achieve a six percent increase in its light industrial production, instead of five percent as planned at the beginning of this year. Additional taxes and profits turned over to the state at the year end will come to 40 million yuan (RMB). This latest move taken by Shanghai, China's biggest industrial center, mirrors the current national effort to bolster state revenues by increasing production and improving industrial management. A national forum on industry and transport called by the State Council, which closed September 1, called for still bigger increases in China's consumer production in the last four months of this year. [Text]  
[OW070622 Beijing Xinhua in English 0755 GMT 5 Sep 81]

CSO: 4020/249

## CONSTRUCTION

### SHENZHEN TO BUILD INTERNATIONAL AIRPORT

HK100244 Hong Kong STANDARD BUSINESS SUPPLEMENT in English 10 Sep 81 p 1

[Text] The Shenzhen Special Economic Zone (SEZ) will soon build its own international airport as well as a deep water port to cater to its increasing passenger and cargo flow to and from the outside world.

The Shenzhen municipal vice party secretary Cao Xizhi yesterday said the State Council of Beijing has given approval to the SEZ to build an international airport, either on its own or in cooperation with foreign investors.

Mr Cao did not reveal when the construction of the new airport will commence or the amount of capital involved.

Shenzhen sources said that a number of foreign consortiums has already contacted the Shenzhen authorities to discuss the possibility of cooperation.

Speaking at an opening ceremony of Shenzhen's first housing estate, Mr Cao also revealed that the Hong Kong Government has not approached Shenzhen authorities on the possibility of jointly building an airport to serve mutual needs.

The government is currently thinking of building a new airport in the new territories to replace the Kaitak airport.

The government, has hired a consultancy firm to study the feasibility of setting up a new airport at Cheklapkok, Lantau, while it also recruited another firm to do a similar study in Yuenlong near Deep Bay about three months ago.

This raised speculation that the government wants to build a new airport near the border to convince the Shenzhen authorities to abandon its own airport plan and use the airport facilities in Hong Kong.

In this way, Shenzhen would come to rely more on Hong Kong, enhancing the colony's future status.

Mr Cao's council has also given the go-ahead to build a deep water port at Chiwan, about 2.3 kilometers west of the Shekou industrial district of the zone to act as a cargo transaction terminal for both Shenzhen and other parts of Guangdong.



The housing estate Tungwulaiyuen (Tungwu Garden), which was opened yesterday, is a joint venture between the Shenzhen Realty Development Corporation, the property arm of the Shenzhen government, and a local developer, Millie's Group.

According to a Millie spokesman, the first two phases of the estate already completed consist of 216 units of 650 square feet and are sold at a price of \$17-190,000 [figure as published] each.

CSO: 4020/249

## LABOR AND WAGES

### LABOR STRUCTURE OF CITIES, TOWNS CATEGORIZED, ANALYZED

Beijing DILI XUEBAO [ACTA GEOGRAPHICA SINICA] in Chinese No 2, 1981 pp 121-133

[Article by Wu Youren [0702 0645 0088], Geography Department, Nanjing University: "Preliminary Study of the Labor Structure of City and Town Population in China"]\*

[Text] By the labor structure of city and town population is meant the proportional relationship of various population categories to the total population of cities and towns. This includes the proportion of the non-agricultural population to the agricultural population, the ratio of the working population (staff and workers) to the total city and town population (non-agricultural population), and the proportional relationship among all categories of the working population. A study of the labor structure of city and town populations is, therefore, a study of the equitable proportions of all categories of population in different kinds of cities and towns following the objective laws of city and town formation and development.

Study of the labor structure of city and town populations is a major ingredient in the study of the many disciplines of urban economics, urban geography, and population geography. It is a research problem to which many countries in the world devote serious attention.

It is generally known that in order to meet the needs of political, economic and cultural development, the formation and development of a city or town "must expend varying kinds of and a certain amount of its total social labor force," and in every sector of the national economy "to distribute social labor in definite proportions." [1] If this social labor is distributed in improper proportions in

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\* Investigation and research for this article has received the vigorous support of the State Capital Construction Commission, the Municipal Construction Bureau, and of numerous provincial (prefectural) and municipal construction commissions (city construction bureaus and capital construction bureaus). In the process of writing and revising it, concrete guidance and valuable ideas were offered by comrades Liu Xuehai [0491 1331 3189], Wang Fan [3761 0416], and Xia Zonggan [1115 1350 3771] in the Urban Construction Bureau of the State Capital Construction Commission, by Comrade Liu Darong [0491 6671 1369] in the Municipal Construction Institute, by Comrade Sun Panshou [1327 4149 1108] of the Geography Institute of the Chinese Academy of Sciences, and by Comrade Song Jiaqin [1345 1367 3141] in my own department. Comrades Xu Yuming [1776 3768 6900], Xu Peisheng [6079 1014 3932], and Fan Xin [5400 0207] helped draw the illustrations, for which thanks is hereby expressed.

the various sectors, the production of goods by each sector cannot be coordinated and moved along. Production and life will not then be able to be built in an integrated way, and commensurate development will not be possible in communications and transportation, or in education and culture. Comprehensive economic benefits from investment in capital construction will not be able to find full play, and there will be no orderly, smooth development of political, economic, and cultural life in cities and towns. Therefore, study of the labor structure of city and town population possesses definite theoretical and practical significance.

### 1. Categories of China's City and Town Population

Illucidation of the laws of development of the labor structure of city and town population in China requires, first of all, a rational categorization of city and town population.

Since Liberation, for purposes of urban planning in China, in order to make a sensible analysis of city and town population and project the scope of city and town population growth, city and town population has been divided on the basis of the growth of the "formation sector" and the "service sector" into basic population, service population, and the population that is being reared. By basic population is meant the staff and workers in the formation sector for the growth of cities and towns. This includes mostly staff and workers outside the city who are working in plants and mines, enterprises, government organizations, and schools. By the service sector is meant staff and workers in the service sector for the growth of the city, i.e. mostly those employees and workers in the city who are providing services to plants and mines, enterprises, government organizations, and schools. The population being reared means young people who have not yet reached working age, and children who have not yet reached school age; housewives engaged in labor at home, social youths, old people, and disabled people who have lost their capacity to work. Everybody has discussed these categories a great deal, and they merit further deep examination.

We believe that the classification of city and town populations must proceed from the fundamental premise of "distributing social labor into definite proportions," reflecting the objective laws of the formation and development of cities and towns, and the proportional relationships in distribution of the workforce. Generally speaking, the proportional relationships in the distribution of city and town workforces are manifested principally in the following several aspects:

1. The proportional relationships of the distribution of workforce between the production sector and the non-production sector. Cities and towns are an extraordinarily complex totality, involving the fields of politics, economics, and culture, and including all sectors of the national economy. They contain both industrial, agricultural, capital construction, and transportation, communications, and posts and telegraphs material production sectors, as well as the non-material production sectors of commerce, service trades, finance and trade, banking, municipal public utilities, culture and education, scientific research, medical treatment and hygiene, and administration and management. These are mutually restrictive and mutually supportive in their relationships to each other. Growth of the material production sector restrains the non-material production sector; however, the non-material production sector may also impair growth of the material production sector. Proportional relationships in the distribution of workforces between the two must be correctly handled.

2. Proportional relationships in the distribution of workforces between industry and other sectors. The material foundation on which socialist cities and towns depend for their growth is many sided, the major and most fundamental of which is industry. Therefore, the workforce requirements for city and town growth are determined principally by the level and scale of industrial growth, and these requirements are greatly affected by the growth of other sectors as well. In the distribution of city and town workforces, it is necessary, first of all, to take into consideration the needs of industrial development, and to correctly handle the proportional relationships in the distribution of workforces between industry and other sectors.

3. Proportional relationships in the distribution of some other workforces, such as the proportional relationship between heavy industry and light industry within industry itself; the proportional relationship among capital construction, communications and transportation, and the entire national economy; the proportional relationship among commercial services, public utilities, and the national economy; the proportional relationship between scientific research and building of the economy. All these are also major proportional relationships. If the proportional distribution of workforces among each of them is not coordinated, city and town production and life will be impaired.

4. Proportional relationship between the working population and the non-working population. Apart from the rural population that becomes the population of cities and towns, and apart from movement of population from one city or town to another, the principal source of the workforce in cities and towns is full tapping of the work potential existing within the cities and towns themselves. One way of doing this is to increase the labor productivity rate. Another way is to transform the non-working population into a working population. Within the population of cities and towns there is a constant shifting between the working and non-working population. This process is determined both by the level of production growth, and is also closely related to natural population increase. Therefore, it is necessary, on the basis of the natural laws of population increase in cities and towns, and on the basis of the laws of economic development, to accurately work out the proportional relationship between the working and non-working population to fully tap the work potential within cities and towns.

First we divided the population of the cities and towns of the country into the two broad categories of non-agricultural and agricultural population, after which we divided the population engaged in agricultural into the two categories of working population and non-working population. Then, depending on the nature of work of the working group, we divided the working population into nine categories, namely, industry, capital construction, agriculture-forestry-irrigation-meteorology, transportation - posts and telecommunications, commercial service - water supply, public utilities, science-culture-education-sanitation, banking, state organizations, and people's organizations. The first four of these have been designated as the productive working population (staff and workers), and the last five categories have been designated non-productive working population. (staff and workers)

#### (1) The Working Population (Labor Staff and Workers)

1. By productive working population is meant all the staff and workers involved in work in the sector that produces goods under a system of ownership by all the people or collective ownership. This includes the following several categories:



I. Industrial staff and workers including the workers, engineers and technicians, managers, service personnel and others working in various industrial sectors.

II. Staff and workers in capital construction including construction units, surveying and designing organizations, geological survey and construction planning organizations, and production preparation personnel.

III. Staff and workers in agriculture, forestry, irrigation, and meteorology including those working in units concerned with agriculture, forestry, animal husbandry, aquatic products, water conservancy, and meteorology, but not including suburban commune collective workers.

IV. Staff and workers involved in transportation and posts and telecommunications including all employees and workers on railroads, highways, water transportation, in port areas, in civil air transportation, and in posts and telecommunications.

2. By non-productive working population is meant all employees and workers in the non-material production sector. These include:

I. Commercial service and drinking water supply staff and workers, including all staff and workers in commercial, service, drinking water and food industries, and material supply and marketing units.

II. By urban public utility staff and workers is meant within-city staff and workers involved in public transportation, road maintenance, running water, coal gas, underground conduit care, orchard care, housing management, and environmental sanitation units. However, running water works and coal gas plants that are independent accounting units must be included under industrial units.

III. Science, culture, education, and hygiene employees and workers include staff and workers in units concerned with scientific research, culture, education, hygiene, broadcasting, physical education, and social welfare endeavors, as well as students in institutions of higher learning, middle schools, and technical schools.

IV. Staff and workers in banking units include those in the People's Bank and the Construction Bank system.

V. Staff and workers in state organizations and people's organizations are those in all echelons of state authority and administrative organizations, party organizations, and in supply and marketing cooperatives above the county level.

(2) The Non-Working Population (Non-working staff and workers, and people being reared)

1. Non-adults and old people beyond working age.

2. Women engaged in work at home, social youths, and others.

3. Those who have lost the capacity to work and are unable to engage in social collective labor.

We believe that the aforementioned categories of city and town population are fairly clear in conception and fairly accurately delineated. They are along the same lines as statistics on staff and workers in the city and town population of the country, are handy for statistical checking, and can fully reflect the proportional relationships of workforce distribution in cities and towns. They are helpful as a foundation for national economic planning, and for projecting the scale of city and town population growth. However, as a result of the direct application of statistical data, certain deficiencies also exist. For example, the productive working population contains a small amount of non-productive working population, and in the non-productive working population a small number of productive workers have been included etc. In addition, classifying scientific researchers as non-productive workers as well as the problem of how to handle students in institutions of higher learning and in middle and technical schools also merit further study.

## 2. Changes and Trends in the Growth of the Labor Structure of China's City and Town Population

With the building and consolidation of the socialist system in China since Liberation, and the flourishing development of socialist construction, which has changed consumer cities into producer cities, remarkable changes have taken place in the labor structure of the population of China's cities and towns. This has been manifested specifically as follows:

### (1) Steady Increase in the Ratio of the Working Population

The proportional relationship between the working population and the non-working population is determined by the form of social production and the level of development of cities and towns, and is also affected by the natural increase in population and the age structure of the population. Establishment of the socialist system in China created the prerequisite conditions for full employment of city and town residents. As the socialist revolution and socialist construction burgeon, as consumer cities become producer cities, and as planned births are instituted, the ratio of the working age population continually increases.<sup>1)</sup> Thus the ratio of the working populace to the population of cities and towns steadily rises, and the proportion of the non-working population declines commensurately. In national terms, this means that during the period immediately following Liberation, the working population was in a ratio of almost 10 to 20 percent of the total population, or below 10 percent at minimum, and no more than 40 percent at maximum. Now, the ratio of the working population to the country's city and town population has risen to around 40 or 50 percent, or likely 50 percent but less than 60 percent.

### (2) Industrial Staff and Workers, and Staff and Workers Engaged in Productive Labor as a Portion of Total Staff and Workers.

Following liberation of the country, an overwhelming majority of the more than 100 cities inherited from old China were consumer cities in which the ratio of industrial staff and workers and productive working staff and workers was very small,

1) For example, before instituting planned births in Nanjing, the natural population increase in 1953 was 25 percent, and the working age population amounted to 47 percent of the city's total. Following institution of planned births, the rate of natural increase in 1974 was only 5 percent, and the working age population was more than 55 percent of the total.

the former amounting to only about 20 or 30 percent, and the latter amounting to less than 50 percent. Even though the proportion of urban industrial and productive working staff and workers in some cities was fairly large, that was also the result of the lopsided growth of cities. For example, industrial staff and workers in Anshan during 1949 numbered about 70 percent of the total number of staff and workers, and staff and workers engaged in productive labor amounted to more than 90 percent of the total. However, staff and workers in cultural, educational, and commercial service units were a very small ratio and far from being able to satisfy the needs of working people's lives.

Since the founding of the People's Republic, as a result of numerous reforms in the former cities and vigorous growth of industrial and productive endeavors, the cities have become producer cities in which industry is dominant. As a result of the establishment in numerous newly built cities and towns of production bases, transportation hubs, or port facilities, development has taken place. As a result, in the labor structure of China's cities and towns, staff and employees in industry amount to about 50 to 60 percent, and staff and workers engaged in productive labor amount to between 65 and 85 percent. As a result of steady readjustment of the proportion of staff and employees engaged in productive labor relative to staff and employees engaged in non-productive labor in the cities that had formerly developed lopsidedly, the labor structure of urban population is becoming more and more rational.

### (3) Rational Changes Within the Internal Structure of Non-Productive Working Staff and Employees

Non-productive working staff and workers may be divided into two general categories: One is the administrative and management sector which "is not directly related to production," such as the staff and employees in state organizations and people's organizations. The other is the sector "used to satisfy society's common needs," such as staff and workers involved in commercial services, culture and education, scientific research, medical treatment and hygiene, and municipal public utilities. With the establishment and consolidation of the socialist system and the growth of socialist construction, the ratio of the former working staff and workers in cities and towns gradually decreased while the ratio and number of the latter staff and workers gradually has risen on the foundation of the development of production. For example, in Shijiazhuang the ratio of the former group of staff and employees fell from 13.2 percent in 1949 to 4.7 percent in 1974, while the ratio of the latter group of staff and workers rose from 14.1 percent to 18.2 percent. In the labor structure of China's city and town population, the ratio of these two groups of non-productive labor staff and employees has shown a fundamentally identical tendency toward increase and decrease in each city and town, only the extent of change varying when the nature and size of the cities and towns are different.

### (4) Staff and Employees in the System of Ownership by All the People Increasingly Achieving a Dominant Position.

Under the conditions of China's socialist system where the two forms of ownership by all the people and collective ownership by the working masses exist, there is a difference between staff and workers in the system of ownership by all the people and workers and staff of the system of collective ownership among workers and staff of city and town labor. Accompanying the great victory since liberation in the socialist transformation of capitalist industry, commerce, individual handicrafts

and agriculture, which has vigorously developed the state owned economy to a priority position, in the working staff and employees of cities and towns the staff and employees in the system of ownership by all the people has steadily taken a leading position until they now account for from 70 to 80 percent or more.

In the period since Liberation, however, in urban construction and workforce distribution, understanding has been inadequate about the objective laws governing proportional workforce distribution for the development of cities and towns. As a result of the disturbance and destruction caused by the ultra-leftist line of Lin Biao and the "gang of four," in particular, there still exist some inadequately coordinated and not entirely rational places in the labor structure of China's city and town population. This is manifested principally in the ratio of the working population in some cities and towns not being high and the labor potential fairly great.

In industrial cities that have developed a single industry mining or heavy industry economy, in particular, this is especially conspicuous. In numerous cities and towns, the proportion of staff and employees in commercial services, and in the cultural and educational system tends to be small, and vacancies in city and town construction ranks are fairly numerous, impairing the coherent building of production and livelihood and causing numerous inconveniences and effects on urban political, economic, and cultural life. All this awaits further improvements.

In order to thoroughly modernize industry, agriculture, national defense, and science and technology within this century, and to build China into a powerful, modernized socialist country, the impact on the labor structure of cities and towns in the country will be extremely deep.

First of all, with the modernization of industry, agriculture, transportation and communication, and capital construction, a great increase in the labor productivity rate will occur in individual sectors, and great changes will take place in proportional relationship of the workforces in individual sectors. At the same time, numerous new sectors and industries will emerge, creating more superior conditions for the employment of city and town dwellers. Although great development will take place in industrial and production units, because of the modernization of production, the decrease in labor quota requirements, and the rapid increase in staff and employees in the non-productive sector, the tendency will be toward a gradual decline in their ratio.

Secondly, in the process of realizing the "four modernizations," there will be need for "extremely increasing the scientific and technical levels of all peoples," and the vigorous development of cultural, educational and research endeavors. Cities, particularly large cities and exceptionally large cities, are places in which institutions of higher learning and scientific research organizations are concentrated, and where staff and employees in the cultural, educational, and scientific research sector will greatly grow. Their ratio to the total number of staff and employees will strikingly increase.

Third, from the foundation of great growth in productivity, material and cultural living standards of city and town residents will vastly increase, and there will be gradual socializing of the lives of city and town residents, plus a strengthening of economic management work, with a very great development of those sectors that



satisfy the common needs of society, particularly medical treatment and hygiene, social services, municipal public utilities and travel. The ratio of staff and workers engaged in non-productive labor will tend to rise gradually.

Fourth, with the modernization of the transportation and communications industries, particularly the development of modern communications in the vast expanse of rural villages, and with the gradual building of integrated agricultural, industrial, and commercial enterprises, there will be a further intimacy in the relationship between city and countryside and a strengthening of the bonds between industry and agriculture. As a result, cities and towns will expand development of staff and workers engaged in non-productive labor in an increase of service trades and the promotion of commerce and service industries in rural villages.

Finally, accompanying growth in productivity and extremely great increases in the scientific and cultural levels of all peoples, will come more conscious practice of planned births, thereby effecting planned control of the natural rate of increase in city and town population. Consequently, the age structure of city and town population will undergo new changes, the ratio of working age population generally rising, and a definite decline occurring in the ratio of youths and pre-school age children. The lifespan of old people will steadily lengthen. Additionally, the socializing of household work, and the state's creating of conditions for full employment of city and town residents will mean that the future ratio of the working population to the total population will be properly increased.

In some presently industrially advanced countries, industrial staff and employees make up only 30 or 40 percent of the working staff and employees of cities, while staff and employees engaged in commerce and service trades amount to from 40 to 60 percent, exceeding the ratio of those engaged in industry (See Table 1). Though there are many irrational aspects in these countries owing to private ownership of the means of production; nevertheless, they reflect the trend in development of the labor structure of city and town populations. Scientific researchers amount to between 2 and 5 percent of the total population in numerous countries, scientists and engineers accounting for between 1 and 2 percent of this. In large cities and especially large cities, the ratio of scientific researchers to the population is even greater.

Since the 1960's, as science and technology has advanced by leaps and bounds, and economic endeavors have burgeoned, many scholars abroad have done a great deal of forecasting about the trends of future world developments, including devoting a great deal of attention to an analysis of changes in the vocational structure. There is general agreement that "profound changes" will take place in the vocational structure of the population, and that "looked at over the long range, more people will be involved in service trade work." It is estimated that by the year 2000, those involved in the service trades will amount to 80 percent of the total number of people employed (those engaged in goods production and the agricultural sector amounting to 10 percent).<sup>[2]</sup> Moreover, "with expansion in the use of technology to spread the field of automation, greater requirements will be placed on vocational skills. The number of people directly involved in the production process will decline, while at the same time the requirements placed on those who organize technological progress will increase. This trend may be looked at both in terms of the proportional relationship between the numbers of workers and staff, and in terms of the requirement for greater numbers of personnel with higher educations to undertake the work." Such a tendency is becoming increasingly

manifest in the highly industrialized nations of the world. This prediction accords with the laws of development of scientific and technical progress. Naturally, by the year 2000, the actual proportion of the vocational structure and the labor structure of city and town population will require further study. Furthermore, because of different social systems, unequal levels of development of productivity and speeds of increase in labor productivity, and because of differing national circumstances, the vocational structure as well as the labor structure of cities and towns in individual countries have their own individual characteristics.

On the basis of the aforestated understanding, in the process of realizing the "four modernizations," China must constantly readjust the labor structure of its city and town population, gradually increase the ratio of staff and employees in commercial and service trades, in municipal public utilities, in culture and education, and in scientific research, commensurately reducing the proportion of staff and employees in industry and such goods producing sectors, opening new sectors and trades, and equitably increasing the employment rate of city and town population on the basis of requirements for a sensible combination of specialized and comprehensive development. In view of the present state and existing problems in the labor structure of China's city and urban population, and considering the huge effects of the "four modernizations" as well as the process of urbanization of the country, its vast size and huge population, we propose that during the near term (1985), that the ratio of the working population in the labor structure of city and town population be around 45 to 55 percent, that industrial staff and employees amount to between 40 and 60 percent of the total number of staff and employees, that staff and employees engaged in productive labor amount to 65 to 75 percent, and that staff and employees engaged in commerce and the service trades, and in science, education, culture, and hygiene amount to between 10 and 15 percent of total staff and employees. For the long term (the year 2000), the ratio between industrial staff and workers and staff and workers engaged in productive labor should decline by a suitable amount, while the proportion of staff and workers engaged in non-productive work, particularly staff and workers engaged in science, education, culture, and sanitation should increase commensurately. However, the labor structure of the population of different kinds of cities and towns should not be the same. This is elaborated below.

Table 1. Staff and Worker Labor Structure of Some Cities of the World\*

	<u>Number of Staff &amp; Workers (thousands)</u>	<u>Staff &amp; Worker Ratio (%)</u>	<u>Ratio of Staff &amp; Workers in Commerce (%)</u>	<u>Ratio of Staff &amp; Workers in Service Trades (%)</u>
Tokyo	5,368	30.8	30.5	14.2
London	4,488	29.2	12.2	18.8
New York	3,208	26.3	23.4	23.9
Paris	1,309	37.9	18.0	12.7
Alexandria	277	58.8	20.1	11.9
Barcelona	657	33.8	15.2	12.0
West Berlin	827	41.6	17.5	15.6
Delhi	854	19.8	17.2	--
Tehran	755	26.3	18.2	--
Hamburg	1,006	31.8	19.8	11.1
Istanbul	649	27.2	11.4	11.4
Karachi	224	40.2	32.6	22.2
Lahore	162	44.5	32.7	19.2
Madras	1,464	26.9	2.9	40.0
Milan	754	56.6	22.3	2.9
Nagoya	1,145	32.1	28.1	14.1
Osaka	2,310	31.4	33.5	12.1
Rome	430	25.6	31.6	5.6

\*Source of Data: Japan, YOMIURI SHIMBUN, 1974. Basic data for each city is for 1970.

### 3. Characteristics of the Present State and Equitable Proportions of the Labor Structure of Different Kinds of City and Town Population in China

There are general laws applying to the formation and development of the labor structure of city and town population in China, but different cities and towns have their own individual characteristics. These are determined by the nature of the city and town, and are greatly influenced by the size of the city or town, its level of development, and its composition. Experience has shown that because of the different nature of cities and towns, their position and roles in the political, economic, and cultural life of the country and the region differ. The "various different kinds of and different amounts of society's total labor force," required for development also differ; thus the labor structure of the population of each city has its own characteristics. Cities and towns having the same nature, even though different in size, will show like characteristics in the labor structure of their populations. When cities and towns have identical natures but their sizes are different, their levels of development not identical, and their composition not the same, the population of cities and towns will show definite differences only in certain places in their internal labor structure. For example, Nanjing is an especially large city with a population of 1 million, while Jinan is only a large city with a population of 500,000. Inasmuch as both are the location of provincial capitals and are centers of politics, economics and culture for the entire province, the ratio of their working population to the total population of the city, the proportion of their productive working population and their non-productive working population, as well as the ratio of the number of staff and workers engaged in industry, in commerce, in service, in science, education, culture, and

hygiene are virtually identical. As another example, Jixi and Shuangyashan are both cities where the coal mining industry is dominant. Though the former is a city of more than 500,000 people, and the latter has a population of less than 200,000, the labor structure of the urban population in both is virtually identical. Still another example is Yueyang and Zhenjiang, both of which are prefectural political, economic, and cultural centers, and major water and land transportation centers. The proportion of their populations engaged in productive labor to those engaged in non-productive labor is virtually the same. It is only because Yueyang is a city in the process of development that the ratio of staff and employees engaged in industry is lower than for Zhenjiang. (See Table 2 for details). Other kinds of cities and towns are similar. Therefore, in analyzing the labor structure of the population of different kinds of cities in China, it is most important to make an analysis on the basis of the city or town's nature and to consider the effects of its size, level of development, and composition.

In short, on the basis of their position and role in the political, economic, or cultural life of the country or of a region, China's cities may be divided into three basic categories: cities that are national or regional centers of one kind or another; cities that have a predominantly economic function of some kind, including cities in which industry or transportation and communications dominate; and cities in which some special function is dominant (such as revolutionary memorial sites, border defense, and sightseeing cities). However, numerous cities possess functions of several kinds, and thus the kinds of cities and towns are complex and varied. Here emphasis has been given only to analysis of the characteristics of the present labor structure of major kinds of city and town populations, with some preliminary proposals being put forward for future equitable proportions.

#### (1) Cities That Are National or Regional Centers of One Kind or Another

These include Beijing, Shanghai, and Tienjin, three cities directly subordinate to the central government, as well as all provincial capitals, and capitals of autonomous regions. Since these are political, economic, and cultural centers for the entire country, an entire province, or an entire prefecture, production and service facilities are fairly well developed, and conditions for the employment of urban residents are good. In addition planned birth work has been taken fairly firmly in hand; planned control has taken place in the natural rate of population increase; and the ratio of the working age population to the total population of these cities is generally more than 50 percent; consequently, the working population amounts to about 45 or 50 percent of the total urban population. The working population in government organizations, people's organizations, commerce and service trades, and science, education, culture, and sanitation is fairly large, while staff and workers in industry amount to only 45 to 50 percent or so. The population engaged in productive labor amounts to between 65 and 75 percent of the total working population. However, owing to differences in size as well as differences in the levels of development, the ratio of staff and workers in industry, of capital construction, commerce, service trades, and cultural, and education staff employees is somewhat different. (See Graph 1).



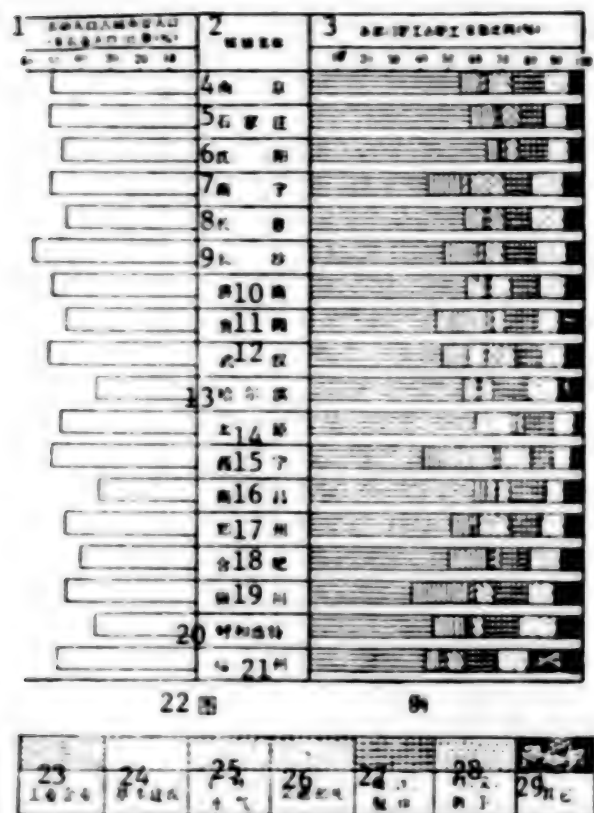
Table 2. Comparison of Labor Structure in Some of China's City and Town Populations

1 人口劳动构成	2 城市等级		5 特大城市		6 大城市		7 中等城市		8 小城市	
	3 城市名称		9 京		10 南		11 西		12 双鸭山	
	4 城市性质		15 省会城市		16 省会城市		17 煤业城市		18 煤业城市	
									地区中心、水、陆交通枢纽城市19	
21 劳动人口比重(%)			50.6		50.0		25.4		25.0	
22 生产性劳动职工占职工总数比重(%)	24 小计		74.3		73.3		83.8		82.5	
	工业职工		54.8		57.0		73.5		66.6	
	基本建设		7.6		6.7		7.4		13.4	
	农林水气		2.1		0.9		1.1		0.9	
	交通邮电		9.8		8.7		1.8		1.6	
23 非生产性劳动职工占职工总数比重(%)	25 小计		25.7		26.7		16.2		17.5	
	商服饮供		11.5		10.1		8.6		9.3	
	公用事业		2.1		2.2		0.6		0.5	
	科文教卫		10.2		10.4		4.5		4.7	
	金融		0.3		0.5		0.4		0.6	
	机关团体		1.5		3.4		2.1		2.4	
	其它		0.1		0.1		—		—	

Small cities have less than 200,000 people; medium size cities have populations of from 200,000 to 500,000; large cities have populations of from 500,000 to 1 million; especially large cities have populations of more than 1 million.

Key:

- |   |  |
|---|--|
| 1. Labor Structure of population              | 20. Prefecture center and transportation hub   |
| 2. Class of city                              | 21. Ratio of working population (%)  |
| 3. Name of city                               | 22. Staff and workers in productive labor as a proportion of total labor force (%)   |
| 4. Nature of city                             | 23. Staff and workers in non-productive labor as a proportion of total labor force (%)   |
| 5. Especially large city                      | 24. Sub-total. Industrial employees, capital construction, agriculture, forestry, irrigation and meteorology, transportation, posts and telegraphs.  |
| 6. Large city                                 | 25. Sub-total. Commercial, clothing, drinking water supply personnel; scientific, and cultural, educational, and public health personnel; banking; governmental and public organizations; other. |
| 7. Medium size city                           |  |
| 8. Small city                                 |  |
| 9. Nanjing                                    |  |
| 10. Jinan                                     |  |
| 11. Jixi                                      |  |
| 12. Shangyashan                               |  |
| 13. Zhenjiang                                 |  |
| 14. Yuehyang                                  |  |
| 15. Provincial capital                        |  |
| 16. Provincial capital                        |  |
| 17. Coal industry city                        |  |
| 18. Coal industry city                        |  |
| 19. Prefecture center and transportation hub. |  |



Graph 1. Cities That Are National or Regional Centers of One Kind Or Another

Key:

1. Working population as a ratio (%) of the total urban population (non-agricultural population)
2. Name of City
3. Staff and workers in each sector as a proportion (%) of the total number of staff and workers
4. Nanjing
5. Shijiazhuang
6. Shenyang
7. Nanning
8. Changchun
9. Changsha
10. Jinan
11. Guiyang
12. Wuhan
13. Haerbin
14. Taiyuan
15. Xining
16. Nanchang
17. Zhengzhou
18. Hefei
19. Yinchuan
20. Hehehaote
21. Fuzhou
22. Explanation of Graph
23. Industrial Enterprises
24. Capital Construction
25. Agriculture, Forestry, Irrigation, and Meteorology
26. Transportation, Posts and Telegraphs
27. Commercial, clothing, drinking water, and supply personnel
28. Scientific, cultural, educational, and public health personnel
29. Other

On the basis of representative sampling done in the cities of Nanjing, Shijiazhuang, and Nanning, in these kinds of cities when staff and workers doing productive labor exceed 70 percent, while staff and workers engaged in commerce and the service trades, and in science, culture, education, and hygiene number less than about 10 percent each, it is generally felt that the proportion of staff and workers engaged in productive labor is slightly high while the ratio of staff and workers in non-productive labor such as commerce and service trades, and in science, culture, education, and hygiene tends to be low. For example, in 1974, staff and workers engaged in productive labor in Nanjing numbered 74.3 percent, while staff and workers engaged in commercial service and in science, culture, education, and hygiene numbered 11.5 and 10.2 percent respectively; however, this proportion was felt to be somewhat low. In addition, commerce and service facilities were overly concentrated, causing numerous inconveniences for the material and cultural life of urban residents. On the basis of the aforesaid situation, and in consideration of future growth, it is proposed that the ratio of staff and workers engaged in productive labor, in the short term, be 60 to 70 percent of all staff and workers, that industrial staff and workers amount to 40 to 45 percent; that commercial service staff and employees amount to between 10 and 15 percent, that staff and workers engaged in science, culture, education, and hygiene be more than 10 percent.

## (2) Predominantly Industrial Cities

This category of city may be one of two kinds. The first is a city where processing industries are fairly well developed, and the second is a city in which extractive industries are dominant.

1. Cities in which processing industries are fairly well developed. This includes cities where metal smelting, petrochemical industries, machine manufacture, and processing of farm products predominate. According to statistics, employment is rather full in this kind of city (the working population being about 50 percent of total population); staff and workers in industry amounting to more than 55 percent of the total number of staff and workers; the population engaged in productive labor amounting to between about 75 and 85 percent, which is higher than that in the category of cities next above. However, as a result of differences in size, or differences in level of development, or different composition, some places in the labor structure of city and town population differ. In the case of the two developing cities of Baotou and Shiyan, the productive working population is 79.5 and 86.4 percent respectively, and staff and workers in industry number only 52.4 and 58 percent respectively. Meanwhile, staff and workers in capital construction number 30 and 15.3 percent respectively, higher than the ratio in similar types of cities in the country. As another example, Qiqihaer, though a city in which the machine manufacturing industry is dominant, since it is a city with three satellite towns, commerce and service trade staff and employees account for 14.8 percent, more than twice the percentage of other cities of the same kind (See Graphs 2 and 3).



Graph 2. Labor Structure of Industrial Urban Population (1)

Key:

1. Working population as a ratio (%) of total urban population (non-agricultural population)
2. City
3. Staff and workers in each sector as a proportion (%) of the total number of staff and employees
4. Anshan
5. Bexi
6. Handan
7. Baotou
8. Shiyan
9. Jilin
10. Sanming
11. Qiqihaer
12. Lushun-Dalian
13. Wuxi
14. Qingdao
15. Changzhou
16. Qinzhou
17. Weifang
18. Jining
19. Xiamen
20. Zhangzhou
21. Nanping



Graph 3. Labor Structure of Industrial City and Town Population (2)

Key:

1. Working Population as a Ratio (%) of Total Population (Non-agricultural Population)
2. City
3. Staff and Workers in Each Sector as a Proportion (%) of Total Numbers of Staff and Workers
4. Duyun
5. Dandong
6. Jinzhou
7. Yingkou
8. Liaoyang
9. Xingtai
10. Baoding
11. Zhangjiakou
12. Suzhou
13. Nantong
14. Chengde
15. Guilin
16. Liuzhou
17. Anshun
18. Zunyi
19. Siping
20. Tongliao



Cities in which extractive industries predominate are characterized by having numerous sites distributed over an area, and this has a very great effect on the labor structure of the urban population. For example, in cities where extractive industries predominate, the employment rate for residents is only 35 to 45 percent, and in numerous cities it is only about 30 percent. However, industrial staff and workers number more than 65 percent, and the productive working population is about 75 to 80 percent. Of all city types, this is the one in which the proportion of industrial staff and workers and productive working population is the highest. (See Graph 4 for details).



#### Key:

1. Working Population as a Ratio (%) of Total Population (Non-agricultural Population)
2. City
3. Staff and Workers in Each Sector as a Proportion of Total
4. Fushun
5. Fuxin
6. Tangshan
7. Datong
8. Xuzhou
9. Jixi
10. Shuangyashan
11. Hegang
12. Haibowan
13. Wuda
14. Yunnan
15. HuaiBei
16. ZaoZhuang

Graph 4. Labor Structure of Coal Mine City and Town Populations

In this sort of city, one of the main problems existing in the labor structure of the population is that the ratio of productive working staff and workers is fairly high. Whenever productive working staff and workers amount to more than 85 percent, and industrial staff and workers exceed 70 percent, production and life cannot develop in coordination. That numerous cities have busied themselves during the past several years in the readjustment of the proportions between industrial staff and workers and other staff and workers, and between staff and workers engaged in productive labor and staff and workers engaged in non-productive labor in order to meet the needs of urban development is a powerful testimony to this. For example, before Liberation as a result of lopsided development, the industrial staff and workers in Anshan amounted to 80 percent of the population, and the staff and workers engaged in productive labor amounted to 92.8 percent. Ever since liberation, readjustments have been made in these proportional relationships. By 1965, staff and employees engaged in industry numbered only 69 percent, and staff and employees engaged in productive work numbered 81.8 percent, substantially meeting the needs of urban production and life. Later, as a result of the disturbances and destruction caused by the ultraleftist line of Lin Biao and the "gang of four," the ratio between staff and workers engaged in industry and staff and workers engaged in productive work gradually rose (See Table 3), entailing great inconveniences for urban residents and the livelihood of staff and employees, and conversely impairing development of production.

Table 3. Changes Since Liberation In the Labor Structure of the Population of Anshan

1 年 代	2 劳动人口占总人口比重(%)	3 工业职工占总职工比重(%)	4 生产性劳动人口占职工比重(%)
1949	46.6	83.0	92.8
1952	49.0	64.5	90.6
1957	53.0	58.0	88.7
1962	55.4	74.5	83.5
1965	55.0	69.0	81.8
1970	-	70.3	85.2
1973	51.5	74.9	85.4
1974	56.9	71.0	81.9

Key:

1. Year
2. Working Population As a Ratio (%) of Total Population
3. Industrial Staff and Workers As a Ratio (%) of Total Staff and Workers
4. Staff and Workers Engaged in Productive Labor As a Ratio (%) of Staff and Workers

Yet another problem in the labor structure of populations in this kind of city is the uncoordinated development of heavy and light industry. In cities where there is little other than heavy industry, and in mining cities, because production is pretty much of a single kind, employment opportunities for urban residents, and particularly for housewives, is rather scant, and the ratio of working population tends to be low. Statistics from nearly 159 cities and towns throughout the country show that in cities and towns where the working population is below 40 percent of the total population, about three-fourths of such cities were mining cities or cities in which there was little other than heavy industry. In numerous coal mining cities, the working population was only about 25 to 30 percent. This seriously hurt the economic income of the families of staff and workers and their real standards of living, brought about a relative gap between male and female staff and workers, made for difficulties in getting married, or because the coefficient of those with dependents tended to be low, staff and employees returned to the countryside for long periods to visit relatives to the great impairment of urban production.

In view of the above, in order to meet the needs of the "four modernizations," and over the short run, industrial staff and workers should be no more than 65 percent of staff and workers; workers and staff engaged in productive work should amount to 75 to 80 percent; staff and workers engaged in commerce and service trades should number 5 to 10 percent, and staff and workers engaged in science, education, culture, and sanitation should amount to about 5 percent. At the same time, attention should be given to coordinated development of light and heavy industry, and efforts made to increase the ratio of the working population.

(3) Cities in Which Communications and Transportation Are Dominant (specifically, cities that are regional centers or communications and transportation hubs).

These are characterized by having a high ratio of transportation, posts and telecommunications, and commerce and service staff and employees. In national terms, staff and workers engaged in transportation, posts and telecommunications amount to less than 10 percent, while in this category of city they are more than 10 percent, and in some cities greater than 15 to 20 percent. Therefore, the ratio of productive working population is the same as in industrial cities. Because the level of industrial development and the size of cities of this kind differ, the ratio of the working population in each differs greatly. For example, in Lianyungang, Zhanjiang, and Qinjiang, each of which is a developing city, the levels of industrial production are not high; therefore, the ratio of the working people is lower than the general level of this category of city. (See Graph 5).



Key:

1. Working population as a ratio (%) of Total Urban Population (Non-agricultural Population).
2. City
3. Workers and Staff in Each Sector as a Proportion (%) of Total Workers and Staff
4. Zhanjiang
5. Yuehyang
6. Changde
7. Wuzhou
8. Zhenjiang
9. Lianyungang
10. Cangzhou
11. Dezhou
12. Yantai
13. Quanzhou
14. Ganzhou
15. Wuhu
16. Yangzhou
17. Qingjiang

Graph 5. Labor Structure of Regional and Communication Center City Populations

In this category of city, the ratio of the transient population is fairly large. It is generally about 1/10 to 1/30 of the total population of the cities and towns. In addition, such cities are frequently prefecture (autonomous zhou, or league) political, economic, or cultural centers, and staff and workers engaged in non-productive labor such as drinking water supply, science, culture, education, and hygiene are a fairly large ratio. Representative sampling done in Yantai, Yueyang, and Zhenjiang shows that whenever staff and workers engaged in productive labor exceed 80 percent, those engaged in commercial service and water supply are as low as 10 percent, and staff and employees engaged in science, education, culture, and hygiene are less than 6 percent, urban production and life seem out of kilter. For example, since liberation, as Yueyang City in Hunan Province has changed from a consumer city to a producer city, the ratio of staff and workers engaged in productive labor has increased year by year. However, when it exceeded 80 percent in 1972, there was a sense that production and livelihood were insufficiently coordinated, so a steady readjustment was begun. By 1976, it had declined to 79 percent;

however, it was still felt that the ratio of staff and workers in commerce and service trades, and in science, education, culture, and hygiene tended to be low (the former being 9.1 percent, and the latter being 6.3 percent) (See Table 4). Currently hotels and inns are fairly crowded, and about an average of 1,000 persons per day pass the night in the railroad station or at the pier. Because of a lack of commercial service facilities at Chenglingji, Yangtze River passenger ships have stopped docking there, causing great inconvenience for the broad masses of passengers. In addition, public cultural and welfare facilities cannot satisfy actual needs.

Table 4. Changes in Labor Structure of Yueyang Urban Population

1 年 代		1957	1959	1972	1976	1977
2 项 目						
3 劳动人口占城市人口(%)		25.4	39.0	55.2	55.4	-
4 生产性劳动职工占职工总数的比重(%)	5 工业职工	29.8	38.0	48.4	46.4	59.4
	基本建设职工	-	8.5	12.1	11.8	11.5
	农、林、水、气、电职工	-	-	4.4	6.5	5.6
	交通运输业职工	17.7	21.0	25.5	21.9	22.5
	合计	47.5	67.5	80.6	79.0	78.8
6 非生产性劳动职工占职工总数的比重(%)	7 商业饮食业职工	11.1	10.9	9.6	9.1	10.5
	城市公用事业职工	0.7	0.7	0.1	0.2	0.4
	科、教、文、卫职工	7.8	3.7	5.8	6.3	5.3
	金融职工	-	0.5	0.2	0.8	0.5
	机关、团体职工	9.0	16.7	3.1	4.0	4.3
	小 计	48.6	32.5	19.0	20.4	21.0
8 其 它		3.9	-	0.4	0.6	0.6

Key:

1. Year
2. Item
3. Working Population as a Percentage of City Population
4. Staff and Workers Engaged in Productive Labor as a Ratio of Total Number of Staff and Workers
5. Industrial Staff and Workers
  - Capital Construction Staff and Workers
  - Staff and Workers Engaged in Agriculture, Forestry, Irrigation, and Meteorology
  - Staff and Workers Engaged in Transportation, Posts and Communications
  - Sub-total
6. Staff and Employees Engaged in Non-Productive Labor as a Ratio (%) of Total Number of Staff and Employees
7. Commercial Services and Drinking Water Staff and Workers
  - Municipal Public Utilities Staff and Workers
  - Science, Education, Culture, and Sanitation Staff and Workers
  - Banking Staff and Workers
  - State Organizations and People Organizations Staff and Workers
  - Sub-total
8. Other



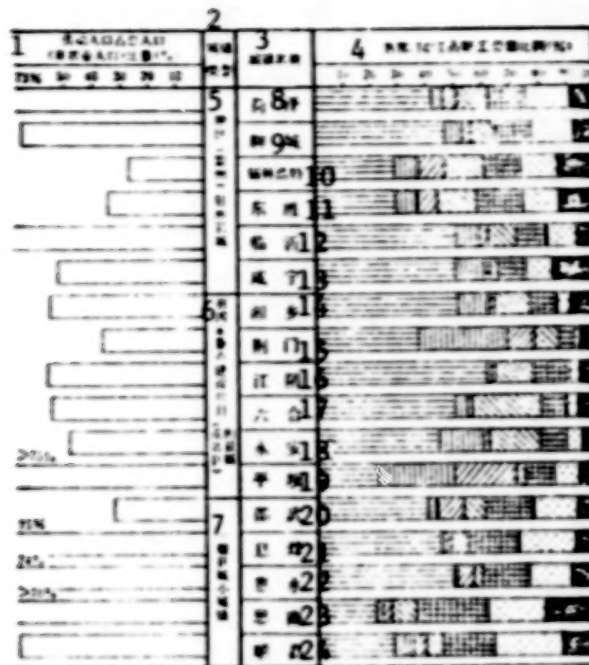
In view of the foregoing, in the short run, this category of city should have about 45 percent of its total staff and workers employed as industrial staff and workers; about 70 to 75 percent as staff and workers involved in productive labors; somewhat more than 10 percent in commercial service trades; and between 5 and 10 percent as staff and workers in science, culture, education, and sanitation. This category of city does a fair amount of production and its employment base is fairly broad; thus, it is proposed that in the short term the working population should be figured at 55 percent.

#### (4) County Seats and Small Cities and Towns

This category of city has two fundamental characteristics: (1) It is a city with links to the widespread rural villages, and it possesses a natural relationship with the farflung rural villages. The ratio of industrial and farming households is fairly large, staff and employees having dependents with them are fairly few; consequently, the ratio of working population to total population may be higher than 60 percent. (2) It is a center of politics, economics and culture for the entire county, and the non-productive population is fairly large; however, the level of industrial development is not high, those employed as staff and workers in industry amounting to only 30 to 40 percent, and the productive working population amounting to usually less than 65 percent.

County seats and small cities and towns are numerous and broad in area, and are of diverse types. Some are seats for prefectures (autonomous regions or leagues); some are areas for key national construction projects; some are major communication centers and centers for the concentration and distribution of goods; some are in counties on the outskirts of large cities; and some are just ordinary county seats. Because of differences in characteristics, or differences in size, or differences in levels of development, the labor structure of each city and town has its own individual characteristics. (See Graph 6 for details).

A representative sampling shows that county seats and small cities or towns that are the locations of prefecture (or autonomous zhou or league) seats (such as Yancheng in Jiangsu Province, or Hengshui in Hebei Province) have labor structure characteristics that are fundamentally the same as national or prefectural urban centers. County seats or small cities or towns that are the site of major national industrial construction projects, or are major communications centers (such as Chengjiang in Jiangsu Province or Xiangxiang in Hunan Province), as well as small cities and towns in suburban counties surrounding large cities (such as Liuhe Town at Nanjing) have labor structure characteristics similar to those of cities that are predominantly industrial or are predominantly communications and transportation hubs. Because their levels of industrial development are relatively low while they are political, economic, and cultural centers for the entire county, the ratio of their commerce and service trades and of their science, culture, education, and hygiene staff and workers will be higher. Therefore, in working out an equitable proportion for the short term labor structure of the population of county seats and small cities and towns, corresponding cities should be consulted.



Graph 6. Labor Structure of Various County Seats and Small Cities

Key:

- |  |                |
|--|----------------|
| 1. Working population as a Ratio (%) of Total Population (Non-agricultural Population) | 10. Xilinhaote |
| 2. Type of City  | 11. Dongsheng  |
| 3. Name of City  | 12. Linyi      |
| 4. Staff and Workers in Each Sector As a Proportion (%) of Total                       | 13. Xianning   |
| 5. County Seat That Is Seat of Prefecture (or League)                                  | 14. Xiangxiang |
| 6. Site of Major National Construction Project (County Seat or Suburban)               | 15. Jingmen    |
| 7. Ordinary County Seat or Small City or Town  | 16. Jiangyin   |
| 8. Heze  | 17. Liuhe      |
| 9. Liaocheng   | 18. Yongan     |
|  | 19. Pingba     |
|  | 20. Shaowu     |
|  | 21. Xifeng     |
|  | 22. Huishui    |
|  | 23. Sinan      |
|  | 24. Shunchang  |

Equitable proportion of the labor structure of the populations of ordinary county seats and small cities and towns. In considering the natural relationship between such cities and the farflung rural villages, whether the city is a hub for the rural villages or an outpost for the support of agriculture, in comparison with other cities and towns, worker and peasant households are usually fairly numerous, the proportion of those having dependents fairly low, and consequently the ratio of the working population may be figured at 50 to 60 percent.

Ordinary county seat and small city and town commerce and service trades, as well as the services provided by cultural and educational endeavors extend to every commune in the entire county. The scope of day to day commerce and service also touches on rural villages from 10 to 20 kilometers distant. Along with the development of modern transportation endeavors will come an enlargement in the scope of the area of contact. In addition, the industry being predominantly local state owned or run by labor collectively, there will be a definite ratio of both industrial and agricultural staff and workers. Thus, in terms of city and town population statistics, industrial and productive workers and staff should be lower than for ordinary cities. It is recommended that for the short term, these be figured at 40 percent and 65 percent respectively.

(5) Cities in Which Some Special Function Predominates

Generally speaking, in such cities, the ratio of the industrial staff and workers, and of productive working population is less than in any other kind of city. Industrial staff and workers amount to less than 40 percent, and the productive working population is less than 65 percent for the most part. Except in the case of border defense cities, staff and workers engaged in commercial service amount to slightly more than 10 percent.

There are a fairly large number of different kinds of this category of city. They may be divided into tourist cities, places with revolutionary memorials, or important national defense or border defense areas or towns. Generally, the ratio of industrial staff and workers and workers and staff engaged in productive labor is 40 percent and less than 65 percent. Except for important military towns, commerce and service trade staff and workers should be somewhat more than 15 percent.

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CSO: 4006/442

## TRANSPORTATION

### BRIEFS

HEILONGJIANG RAILWAY--A new railway starting from Hegang Municipality, Heilongjiang Province, passing through (Baoquanling) mountain in Luobei County and ending in the lesser Xingan mountains opens to traffic 10 September. The railway is 43 km long. This is another major transportation line spanning the hinterland of the great northern wilderness. [Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 14 Sep 81 SK]

CSO: 4006/502

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25 Sept. 1981